

**Instructions for Completing the Terminal Plan Form to Comply with Regulations
to Reduce Emissions from Diesel Auxiliary Engines on Ocean-Going Vessels
While at-Berth at a California Port**

TO BE COMPLETED FOR EACH TERMINAL**

FORM 1 – INSTRUCTIONS ALL COMPLIANCE OPTIONS

The purpose of Form 1 is to gather general information about the Terminal.

Table 1 – General Information

Port/Date: Enter the name of the Port and the date

Terminal Name: Enter the Terminal name

Total Number of Berths: Enter number of berths at Terminal

Address: Enter the mailing address of the Terminal

City, State, Zip: Enter the City, State, and Zip code of Terminal

Terminal Operator: Enter the Terminal Operator name

Contact Person: Enter the name of a contact person if there are any questions regarding the forms

Title: Enter the business title of the contact person

Phone, FAX, email: Telephone number, FAX number, and email of contact person

Check the box next to the Forms submitted in this package: Check the appropriate boxes to indicate which emission reduction options are planned to be used and which forms will be submitted in this package.

FORM 2 – INSTRUCTIONS REDUCED ONBOARD POWER GENERATION OPTION

The purpose of Form 2 is to collect detailed information about the anticipated shipping activity at the Terminal. Form 2 must be filled out if the Terminal is planning to use grid-based shore power and no other control technologies under the reduced onboard power generation option.

Tables 2A to 2C – Grid-Based Shore Power – Reduced Onboard Power Generation Option

(2014, 2017, 2020) Estimate the categories of vessels and Operators that are anticipated to visit this Terminal, how often they may visit, those that will use shore power, the number of visits that will use shore power, the typical berthing times and annual power use: Fill out the table estimating for each affected vessel Operator anticipated to visit the Terminal: the corresponding vessel category (container, passenger, or refrigerated cargo vessel), the total number of vessels that may visit, how many visits those vessels will make, the total number of vessels that plan to use grid-based shore power and how many times they plan to visit the Terminal, the average berthing times for the vessels using shore power, and the total estimated annual power use for the vessels expected to use shore power during the regulatory years 2014, 2017, and 2020.

**For two terminals that are expected to be combined into one terminal within the period 2010-2020, one terminal package may be submitted for both terminals.

FORM 3 – INSTRUCTIONS GRID-BASED SHORE POWER

The purpose of Form 3 is to collect detailed information about the anticipated power requirements for grid-based shore power from the perspectives of the Terminal and the Utility Provider. Form 3 must be filled out if the Terminal is planning to use grid-based shore power as one of the options, or sole option, to satisfy the requirements of the reduced onboard power option and/or the equivalent emissions reduction option.

Table 3A Terminal Information – Grid-Based Shore Power

Is the power available now at the Terminal adequate to service the 2010, 2012, 2014, 2017, and 2020 requirements (Yes or No)? *Please enter NA for Not Applicable if grid-based shore will not be used by 2010 or 2012. Does the Terminal have adequate power to service the requirements for 2010, 2012, 2014, 2017, and 2020? *Please enter NA for Not Applicable if grid-based shore will not be used by 2010 or 2012.

Describe the current Terminal electrical system and include a “simplified schematic”— see instructions and Appendix C for an example. If necessary attach any additional sheets and include reference to Table 3A. Describe the current terminal electrical system and submit a simplified schematic of the terminal's electrical system. For the description of the current terminal system, provide the following:

- 1) Maximum available power (MW)
- 2) Current power usage (peak power range (MW))
- 3) Current annual power usage range (MW-hr)
- 4) System voltage (Low, Med, High)

An example of a simplified schematic is attached in Appendix C. If necessary, attach additional sheets and indicate reference to Table 3A.

Table 3B Terminal Information – Grid-Based Shore Power

***Please enter NA for Not Applicable if grid-based shore will not be used by 2010 or 2012 for the questions in Table 3B.**

How many berths are anticipated to need modifications to meet the regulation requirements? (2010, 2012, 2014, 2017, and 2020): How many existing (as of 12-31-08) berths are anticipated to need modifications to meet the regulation requirements for 2010, 2012, 2014, 2017, and 2020?)

How many new berths are expected to be constructed and have shore power capability? (2010, 2012, 2014, 2017, and 2020): List the number of new berths that are expected to have shore power capability to satisfy the requirements for 2010, 2012, 2014, 2017, and 2020.

Estimate the maximum electrical capacity (MW) for each berth (2010, 2012, 2014, 2017, 2020):
Estimate the maximum electrical capacity (MW) for each berth (2010, 2012, 2014, 2017, 2020)

Estimate the maximum electrical capacity (MW) for the Terminal (2010, 2012, 2014, 2017, 2020):
Estimate the maximum electrical capacity (MW) for the Terminal (2010, 2012, 2014, 2017, 2020)

Identify the improvements necessary to provide power to the berth(s) (i.e. schematics, additional conduit, additional vaults, electrical safety equipment, etc.) If necessary, attach additional sheets and indicate reference to Table 3B: Provide a detailed list of the improvements and anticipated materials needed to provide power to the berth(s) by each regulatory year (2010, 2012, 2014, 2017,

2020). For example, additional conduit, additional vaults, electrical safety equipment, etc. If necessary, attach additional sheets and indicate reference to Table 3B.

Identify revisions to the current system to comply with the 2010, 2012, 2014, 2017, and 2020 requirements of this regulation. These revisions should include:

- 1) Additional power expected to be available
- 2) Addition of new substations or modifications to existing substation
- 3) Additional power lines and applicable voltage necessary to bring the power dock-side
- 4) Additional electrical users (for example, shore power berths).

Examples of simplified schematics are attached in Appendix C. If necessary, attach additional sheets, indicating the compliance year on the schematics, and indicate reference to Table 3B.

Table 3C Utility/Port Information – Grid-Based Shore Power

Please enter NA for Not Applicable if grid-based shore will not be used by 2010 or 2012

Is the power available now to the Port adequate to service the compliance requirements (2010, 2012, 2014, 2017, and 2020) (Yes or No)?): Is the available power adequate to service the 2010, 2012, 2014, 2017, and 2020 requirements?

Please describe the adequacy of the current power availability with respect to shipping activity power needs to the Port and Terminal(s) and include a “simplified schematic” – see instructions. Attach any additional sheets and indicate reference to Table 3C: Attach a simplified schematic that describes the current electrical power system leading from the Utility Provider station to the specified Terminal. This schematic should show the following elements for the existing electrical system:

- 1) The major power line(s) and applicable voltage from the utility substation serving the Port to the Terminal
- 2) Any substations located on port property that are part of this line.

Table 3D Utility/Port Information – Grid-Based Shore Power

Based on your discussions with the Utility Provider and the Port, identify the necessary infrastructure improvements to satisfy the 2010, 2012, 2014, 2017, and 2020 requirements as needed. Identify any specific improvements such as new power lines, additional transformers, substations, etc. Will modifications be made to an existing unit or will a new substation be required? Indicate when these improvements would be necessary with regard to satisfying the 2010, 2012, 2014, 2017, and 2020 requirements. Attach any additional sheets and indicate reference to Table 3D. *Please enter NA for Not Applicable if grid-based shore will not be used by 2010 or 2012

Revisions to the system to comply with the 2010, 2012, 2014, 2017, and 2020 requirements of this regulation should include:

- 1) Addition of new substations or modifications to existing substation
- 2) Additional power lines and applicable voltage necessary to bring the power to the Terminal.

Examples of simplified schematics are attached in Appendix C. If necessary, attach additional sheets, identifying the compliance year on the schematics, and indicate reference to Table 3C.

<p style="text-align: center;">FORM 4 – INSTRUCTIONS EQUIVALENT EMISSIONS REDUCTION OPTION</p>

The purpose of Form 4 is to collect detailed information about the anticipated power requirements for grid-based shore power. Form 4 must be filled out if the Terminal is planning to use grid-based shore power as one of the options, or sole option, to satisfy the requirements of the equivalent emissions reduction option.

Table 4A to 4E Terminal Information – Grid-Based Shore Power – Equivalent Emissions Reduction Option

(2010, 2012, 2014, 2017, 2020) Estimate the categories of vessels and operators that are anticipated to visit this Terminal, how often they may visit, those that will use shore power, the number of vessel visits that will use shore power, provide the typical berthing times and annual power use: Fill out the table estimating for each vessel Operator anticipated to visit the Terminal: the corresponding vessel category (container, passenger, or refrigerated cargo vessel), the total number of vessels that may visit, how many visits those vessels will make, the total number of vessels that plan to use grid-based shore power and how many times they plan to visit the Terminal, the average berthing times for the vessels using shore power, and the total estimated annual power use for the vessels expected to used shore power during the regulatory years 2010, 2012, 2014, 2017, and 2020.

<p>FORM 5 – INSTRUCTIONS EQUIVALENT EMISSIONS REDUCTION OPTION</p>

The purpose of this form is to collect information about the use of distributed generation to satisfy the requirements of the equivalent emissions reduction option. The information that needs to be provided includes a description of the distributed generation technology, how the distributed generation technology will be employed at the Terminal, and an estimate of the anticipated emission reductions.

Table 5A to 5E Distributed Generation – Equivalent Emissions Reduction Option

(2010, 2012, 2014, 2017, 2020) Estimate the categories of vessels and Operators that are anticipated to visit this Terminal, how often they may visit, those that will use distributed generation (DG), and the number of vessel visits that will use DG: Fill out the table estimating for each vessel Operator anticipated to visit the terminal: the corresponding vessel category (container, passenger, or refrigerated cargo vessel), the total number of vessels that may visit, how many visits those vessels will make, the total number of vessels that plan to use distributed generation and how many times they plan to visit the Terminal, for the vessels expected to used DG during the regulatory years 2010, 2012, 2014, 2017, and 2020.

Table 5F Distributed Generation Implementation– Equivalent Emissions Reduction Option

Estimate the total number of distributed generation units needed to serve the power needs at the Terminal in the following years – 2010, 2012, 2014, 2017, and 2020: Estimate how many DG units will be needed to power the vessels while berthed for the following compliance years - 2010, 2012, 2014, 2017, and 2020.

Provide information on the utilization of the anticipated DG units that will satisfy the future requirements. Identify the berths where the equipment is expected to be used, the type of DG unit (i.e. the type of equipment, the type of fuel used, etc.), the maximum power at the berth, the amount of power that will be needed on an annual basis and the units' annual fuel use. Please provide estimates for years 2010, 2012, 2014, 2017, and 2020. Attach any additional sheets and indicate reference to Table 5F: Provide information on the utilization of the anticipated DG units that will satisfy the future requirements. Identify the berths where the equipment is expected to be used, the type of DG unit (i.e. the type of equipment, the fuel used, the control equipment such as IC engine, LNG, SCR,

etc.). Project the maximum amount of power needed at the berth (MW) and the amount of power that will be needed at the berths on an annual basis. Estimate the units' annual fuel use and specify the units for the annual fuel usage (for example, gallons). Please provide estimates for years 2010, 2012, 2014, 2017, and 2020. Attach any additional sheets and indicate reference to Table 5F.

Table 5G Distributed Generation Emission Reductions – Equivalent Emissions Reduction Option

Please provide estimates of baseline and post-baseline NOx and PM emission reduction estimates for years 2010, 2012, 2014, 2017, and 2020. Include documentation supporting the anticipated reductions. Attach any additional sheets and indicate reference to Table 5G: Provide estimates of baseline and post-baseline NOx and PM emissions for all vessels using distributed generation and include supporting information. Provide estimates for the following compliance years – 2010, 2012, 2014, 2017, and 2020.

FORM 6 – INSTRUCTIONS EQUIVALENT EMISSIONS REDUCTION OPTION

The purpose of this form is to collect information about the use of shore side emission control system(s) used to satisfy the requirements of the equivalent emissions reduction option. The information that needs to be provided includes a description of the technology, how the technology will be employed on vessels visiting the Terminal, and an estimate of the anticipated emission reductions.

Table 6A to 6E Shore Side Alternative Controls – Equivalent Emissions Reduction Option

(2010, 2012, 2014, 2017, 2020) Estimate the categories of vessels and Operators that are anticipated to visit this Terminal, how often they may visit, the number of vessels that will use shore side alternative controls and how many visits these vessels will make: Fill out the table estimating for each vessel Operator anticipated to visit the Terminal: the corresponding vessel category (container, passenger, or refrigerated cargo vessel), the total number of vessels that may visit, how many visits those vessels will make, the total number of vessels that plan to use shore side alternative controls and how many times they plan to visit the Terminal, during the regulatory years 2010, 2012, 2014, 2017, and 2020.

Table 6F Shore Side Alternative Controls – Equivalent Emissions Reduction Option

Estimate the number of shore side alternative control units needed in the following years as well as the Berth the unit is located (unit #/berth #) – 2010, 2012, 2014, 2017, 2020. Provide an estimation of how many total shore side alternative control units will be needed to achieve the emission reductions goals for the years 2010, 2012, 2014, 2017, 2020. Also list the Berth ID where the emission control system will be located.

Provide NOx and PM emission reduction estimates (baseline and post-baseline) for years 2010, 2012, 2014, 2017, and 2020. Attach any additional sheets and indicate reference to Table 5F. Provide estimates of baseline and post-baseline NOx and PM emissions for all vessels using shore side alternative control units and include supporting information. Provide estimates for the following compliance years – 2010, 2012, 2014, 2017, and 2020. Attach any additional sheets and indicate reference to Table 6F.

Table 6G Shore Side Alternative Controls – Equivalent Emissions Reduction Option

List and describe the utilization of the anticipated alternative control units that will satisfy the future requirements. Please provide estimates for years 2010, 2012, 2014, 2017, and 2020. Please fill out a separate Table 6G submittal for each type of shore side alternative control unit used at

the Terminal. Attach any additional sheets and indicate reference to Table 6G. List and describe the type(s) of units that are anticipated to be used at the Terminal for the following years - 2010, 2012, 2014, 2017, and 2020. Include a description of the technology (or technologies) used in the shore side alternative control units, the control efficiency of each technology (or technologies), supporting emission measurements or other applicable information, and the fleets expected to use the shore side alternative control unit(s). **Please fill out a separate Table 6G submittal for each type of shore side alternative control unit used at the Terminal.** Attach any additional sheets and indicate reference to Table 6G.

<p style="text-align: center;">FORM 7– INSTRUCTIONS EQUIVALENT EMISSIONS REDUCTION OPTION</p>

The purpose of this form is to collect information about the use of vessel-side emission control systems used to satisfy the requirements of the equivalent emissions reduction option. The information that needs to be provided includes a description of the technology, how the technology will be deployed on the vessels in the fleet, and an estimate of the anticipated emission reductions.

Table 7A to 7E Vessel Side Alternative Controls – Equivalent Emissions Reduction Option

(2010, 2012, 2014, 2017, 2020) Estimate the categories of vessels and operators that are anticipated to visit this Terminal, how many vessels and how many total vessel visits, those that will use vessel-side alternative controls and how many visits these vessels will make: Fill out the table estimating for each vessel Operator anticipated to visit the Terminal: the corresponding vessel category (container, passenger, or refrigerated cargo vessel), the total number of vessels that may visit, how many visits those vessels will make, how many vessels plan to use vessel side alternatives, and the number of vessel visits that will use this technology to meet the compliance requirements of 2010, 2012, 2014, 2017, and 2020.

Table 7F Vessel Side Alternative Controls – Equivalent Emissions Reduction Option

Estimate the number of vessel side alternative control units needed to achieve the emission reduction goals for following years – 2010, 2012, 2014, 2017, 2020. Provide an estimate of the total number of vessel side alternative control units that will be needed to achieve the emission reduction goals for the regulatory years 2010, 2012, 2014, 2017, 2020.

Provide estimates of baseline and post-baseline NOx and PM emission reduction estimates for years 2010, 2012, 2014, 2017, and 2020. Include documentation supporting the anticipated reductions. Attach any additional sheets and indicate reference to Table 7F. Provide estimates of baseline and post-baseline NOx and PM emissions for all vessels using vessel side alternative controls and include supporting information. Provide estimates for the following compliance years – 2010, 2012, 2014, 2017, and 2020. Attach any additional sheets and indicate reference to Table 7F.

Table 7G Vessel Side Alternative Controls – Equivalent Emissions Reduction Option

List and describe the utilization of the anticipated vessel side alternative control units that will satisfy the future requirements. Please provide estimates for years 2010, 2012, 2014, 2017, and 2020. Please fill out a separate Table 7G submittal for each type of vessel side alternative control unit. Attach any additional sheets and indicate reference to Table 7G. List and describe the type(s) the control technique that will be used to reduce the emissions from auxiliary engines for the following years - 2010, 2012, 2014, 2017, and 2020. Include a description of the technology or technique, the control efficiency of the technology or technique, and supporting documentation, such as a source test.

Please fill out a separate Table 7G submittal for each type of vessel side alternative control unit. Attach any additional sheets and indicate reference to Table 7G.

FORM 8 – INSTRUCTIONS ALL COMPLIANCE OPTIONS

Schedule for Implementation

The purpose of a Gantt chart (or similar planning software) is to provide details on when specific activities are planned to be implemented. Attach a Gantt chart for the planned schedule for all control technologies used. Please separate the utility provider, Port, and Terminal activities for each compliance option. Identify the critical elements in the schedule that may delay the implementation of the compliance solution. Include proposed contingency plans that can be implemented in the event that a delay in the schedule occurs.

Contact Information and Submittal Instructions:

If you have any questions related to completing these forms, please contact:

Grant Chin
Phone: 916 327-5602
Email: gchin@arb.ca.gov

Submit hard-copy Terminal Plans by mail to:

California Air Resources Board
Stationary Source Division
Project Assessment Branch,
Program Assistance Section
P.O Box 2815
Sacramento, CA 95812